foveation ; apical half of membrane bronzy brown ; abdomen beneath orange-red.

Long. 6 mm.

Hab. Ternate (*J. J. Walker*, Brit. Mus.).

Division —— ?

Sabellicus, gen. nov.

Resembling *Derœocoris*, from which it differs principally by the structure of the antennæ. Head elongately depressed in front of insertion of antennæ, of which the first joint is as long or a little longer than the head, prominently incrassated, and sometimes compressed from immediately beyond base, somewhat longly marginally pilose, with a distinct spur on outer side of apex ; second joint much longer than first, slender at base and regularly and moderately incrassated towards apex ; remaining joints mutilated in type. Eyes large, almost touching anterior margin of pronotum. Pronotum with the basal margin about twice as broad as anterior margin, with a distinct pronotal collar, and with the posterior angles subtuberculous ; rostrum reaching the intermediate coxæ ; cuneus slightly longer than broad, the fracture profound ; anterior legs robust, the tibiæ moderately incrassate ; intermediate and posterior legs mutilated in type.

Sabellicus apicifer.

Capsus apicifer, Walk. Cat. Het. vi. p. 124. n. 293 (1873).

Hab. Celebes : Makian (Brit. Mus.).

Type in bad condition.

Sabellicus sordidus.

Lopus sordidus, Walk. Cat. Het. vi. p. 57. n. 29 (1873).
Leptomerocoris antennatus, Walk. *loc. cit.* p. 145. n. 109.

XII.—*A Contribution to the Characteristic of Corals of the Group Rugosa.* By Prof. N. Yakovleff.

While engaged in investigating the Upper Palæozoic coral *Lophophyllum proliferum* *, regarding which there have lately

* N. Yakovleff, "Fauna of the upper Portion of the Palæozoic Deposits of the Donetz Basin," Transactions of the Geological Committee, new series, no. 12 (1903).

been published the interesting researches of Duerden *, I had, in the first place, the opportunity of verifying the results of Duerden's labours, which are of certain importance in establishing the general characteristics of the Rugosa, and, secondly, of adding a few data to these characteristics.

As is known, the distinguishing feature of the Rugosa is considered to be the fact that they possess four primary septa, of which two—the *main septum* and the *counter septum*—are in the plane of symmetry of the coral, and the other two—the alar septa—on either side of the plane. Besides, in the quadrants between the primary septa the secondary septa are arranged pinnately as regards the main septum in the quadrants which adjoin it, and parallel with regard to the counter septum in the counter quadrants.

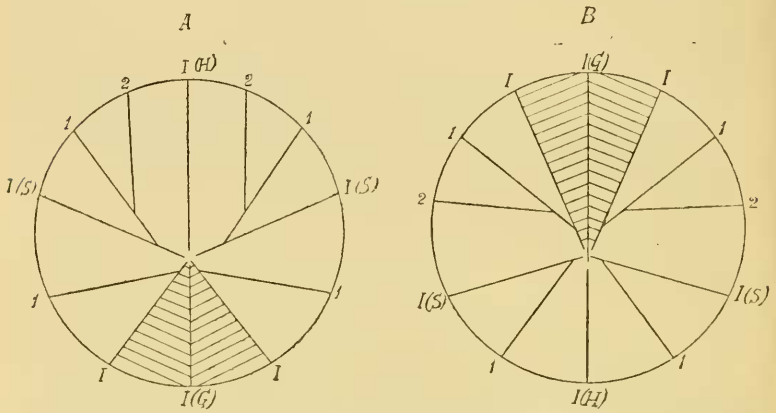
The septa belong to two cycles, of which one consists of large and the other of small septa. It is interesting to observe the way in which the septa are developed in the coral. As proved by Duerden, the septa of one cycle—the small ones—appear comparatively late, simultaneously, and at a certain height. As to the septa of the other cycle—the principal ones—their mode of development has led Duerden to approximate the Rugosa to the group of now living Actinia—Zoantheæ,—their development precluding the possibility of approximating them, as is generally done, to the Hexacoralla, which form a skeleton, and of regarding the former as the progenitors of the latter.

The section (fig. A, p. 116) nearest to the pointed end of the coral is 2·1 mm. in diameter, and represents twelve septa, of which (according to Duerden) *are to be regarded as primary not four, as usually accepted for the Rugosa, but six septa*, which are marked in the figure by the cipher I. Four of them are: the main septum I (H), the counter septum I (G), and the alar septa I (S)—the two remaining septa I being situated next to the counter septum, and forming with it interseptal chambers in which (and exclusively in them) no new septa of the same cycle are developed.

Comparing figures A and B, we notice that the difference between them is but slight, consisting chiefly in this, that the main septum in the Russian specimen is situated on the convex side of the coral, and in the American on the concave side. The same coral in both specimens is bent in an opposite direction. The observed relationship between the degree of development of the main septum and the counter septum in a radial direction

* J. E. Duerden, "On the Relationships of the Rugosa to the living Zoantheæ," Ann. & Mag. Nat. Hist., May 1902, p. 381.

is in all probability owing to the direction of the bend; the *primary septum on the concave side* (in the Russian specimens the counter septum and in the American specimens the main septum) *is short and the primary septum on the convex side is long* (figs. A and B). It seems to me that, with regard both to



A and B, the corresponding sections of the Russian and American specimens (the latter after Duerden, modified as regards the main septum and the counter septum, see below, at end) of *Lophophyllum proliferum*; the portions of the sections turned upwards lie on the convex side of the coral. The primary interseptal chambers in which no new septa are formed are striated. I, I (H), I (G), I (S), the primary septa; 1, 2, the later principal septa.

the main septum and the counter septum, the fact may be easily explained by supposing that the bend of the coral on the concave side causes a contraction, affording less space for the development of the septa than on the convex side; the former is characterized by contraction, the latter by distention.

This assumption is strengthened by another peculiarity of the coral, viz. that of the four primary interseptal chambers, in which the successive principal septa are generally developed, the two situated nearest to the convex side develop the septa more rapidly (in greater number). These chambers are not the same in the Russian and American specimens: in the former (fig. A) they are contiguous with the main septum, in the latter they are separated from it as well as from the counter septum by other primary chambers.

In examining the two specimens (figs. A and B) we must also notice that in two of the four primary chambers *no new septa are formed—invariably in those primary chambers which*

adjoin the counter septum,—either on the convex or concave side, and whether it be long or short.

We thus arrive at a more complete *definition of the primary counter septum*: it is that (1) *in relation to which the contiguous septa are arranged in a parallel direction*, and (2) *which has adjoining primary interseptal chambers, containing no secondary principal septa*.

Duerden is not correct in stating that the main septum and the counter septum lie respectively on the convex and on the concave side of the coral independently of the arrangement of the contiguous septa. This very arrangement has been regarded by palæontologists as characteristic of the primary septa, and, as will be seen from the above, it is more permanent than has hitherto been known.

XIII.—*On the Distribution of Marine Animals* *.

By Prof. M'Intosh, M.D., LL.D., F.R.S., &c.

The distribution of land-animals is a subject which has always been fraught with deep interest to naturalists—more especially as certain regions are characterized by the forms inhabiting them. Thus it would be anomalous to find, for instance, a marsupial in Africa, an armadillo or a sloth (*Bradypus*) in Asia, or a stag in Australia. The chief barriers, moreover, to the general distribution of such forms have been mountain-chains, deep tracts of the sea, barren regions such as the great deserts, and the vicissitudes of temperature. Yet certain aerial forms, such as the bats, are more or less cosmopolitan, and the shrews, the pigs, and the mice are almost so. In weighing the statement, however, that the distribution of certain of these forms, such as the pigs, has been extended by their swimming powers across arms of the sea, it has to be borne in mind that even marine animals do not always avail themselves of the lines of migration at their disposal.

As three fourths of the surface of the globe are composed of water—for the most part continuous throughout—a vast field exists for the distribution, under natural conditions, of its inhabitants, from mammals to Protozoa. Pelagic types may thus range from pole to pole and from the eastern shore of the Isthmus of Panama round the world to the western.

* Notes of an Introductory Lecture, 16th October, 1903.